

Amendments to the Claims

The following listing of claims replaces all prior versions of the claims and all prior listings of the claims in the present application.

Claims 1-34 (canceled)

Claim 35 (currently amended): A tire for a vehicle[[s]] wheel, comprising a tread comprising a vulcanized polymeric base including:

at least one reinforcing filler dispersed in the polymeric base;

an amount of extractable residue of at least one vulcanization accelerator, containing at least one carbon atom bound to at least two sulfur atoms, from greater than or equal to 0.5% and less than or equal to 1.8% by weight based on a total weight of the tread;

an effective amount of at least one activator, expressed as equivalents of zinc oxide, not higher less than or equal to [[2%]] 0.6% by weight based on the total weight of the tread; and

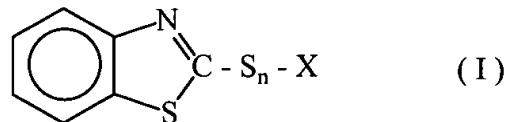
an amount of combined sulfur lower less than or equal to 2.5% by weight based on the total weight of the tread.

Claim 36 (previously presented): The tire of claim 35, wherein the polymeric base is obtained starting from at least one polymer selected from the group comprising: natural rubber; polybutadiene; polychloroprene; polyisoprene; optionally halogenated isoprene-isobutene copolymers; butadiene-acrylonitrile copolymers; copolymers obtainable by polymerization of at least one conjugated diene with at least one vinyl aromatic hydrocarbon; optionally halogenated

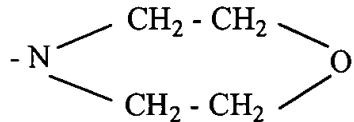
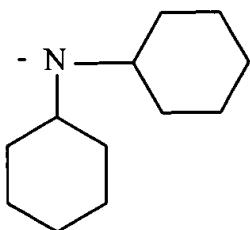
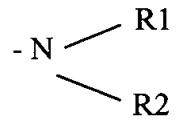
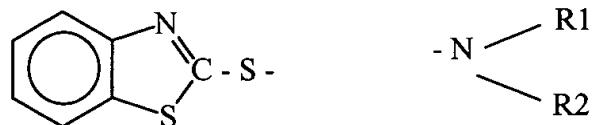
isobutylene/p-methyl styrene copolymers; styrene-butadiene-isoprene terpolymers, obtained either in solution or in emulsion; ethylene-propylene-diene terpolymers; and mixtures thereof.

Claim 37 (previously presented): The tire of claim 35, wherein the at least one vulcanization accelerator is selected from accelerators including at least one 2-benzothiazole or sulphenamide group.

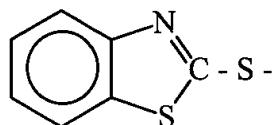
Claim 38 (previously presented): The tire of claim 37, wherein the at least one vulcanization accelerator has a following structural formula:



wherein n is an integer from 1 to 5 and X is H or a group selected from:



wherein R1 and R2 are independently H; an alkyl group; a saturated ring optionally comprising C, S, or O; a cycloalkyl group having 5 or 6 carbon atoms; or a group



Claim 39 (previously presented): The tire of claim 37, wherein the at least one vulcanization accelerator is selected from the group comprising: 2-mercaptopbenzothiazole (MBT), dibenzothiazyl disulphide (MBTS), N-cyclohexyl-2-benzothiazyl-sulphenamide (CBS), N-tert.butyl-2-benzothiazyl sulphenamide (TBBS), 2-morpholinthia-2-benzothiazole (MBS), N-dicyclohexyl-2-benzothiazyl sulphenamide (DCBS), benzothiazyl-2-diisopropyl sulphenamide (DIBS), benzothiazyl-2-tert.amyl sulphenamide (AMZ), morpholine-thiocarbonyl sulphenmorpholine (OTOS), N-tert.butyl-2-benzothiazol sulphenamide (TBSI), and mixtures thereof.

Claim 40 (currently amended): The tire of claim 37, wherein a weight ratio between of the amount of extractable residue of the at least one vulcanization accelerator and to the amount of the at least one activator, expressed in terms of zinc oxide equivalents, is not higher less than or equal to 10:1.

Claim 41 (currently amended): The tire of claim 35, wherein a weight ratio between of the amount of combined sulfur and to the amount of extractable residue of the at least one vulcanization accelerator is greater than or equal to 1.2:1 and less than or equal to 2.8:1.

Claim 42 (previously presented): The tire of claim 35, wherein the at least one activator is selected from the group comprising: oxygenated compounds of a metal selected from Zn, Bi, or Pb; salts formed between the metal and a fatty acid, either saturated or unsaturated, having from 8 to 18 carbon atoms; and mixtures thereof.

Claim 43 (previously presented): The tire of claim 35, wherein the at least one reinforcing filler comprises carbon black, silica, or carbon black and silica.

Claim 44 (currently amended): The tire of claim 43, wherein the at least one reinforcing filler comprises from greater than or equal to 0 phr and less than or equal to 100 phr of carbon black and from greater than or equal to 0 phr and less than or equal to 100 phr of silica.

Claim 45 (currently amended): A tread for a vehicle tire[[s]], comprising a vulcanized polymeric base including:

at least one reinforcing filler dispersed in the polymeric base;

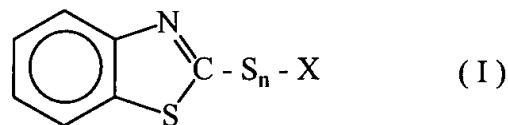
an amount of extractable residue of at least one vulcanization accelerator, containing at least one carbon atom bound to at least two sulfur atoms, from greater than or equal to 0.5% and less than or equal to 1.8% by weight based on a total weight of the tread;

an effective amount of at least one activator, expressed as equivalents of zinc oxide, not higher less than or equal to [[2%]] 0.6% by weight based on the total weight of the tread; and

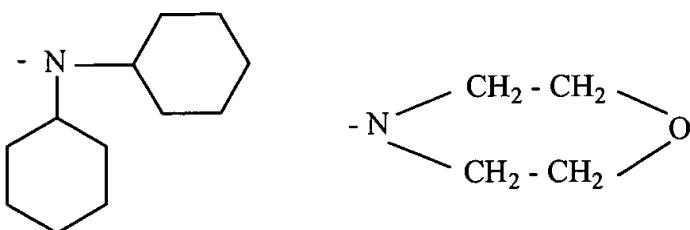
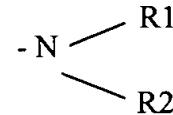
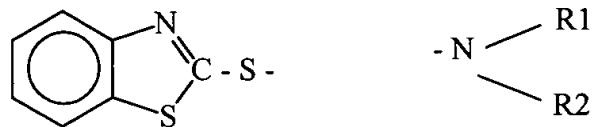
an amount of combined sulfur lower less than or equal to 2.5% by weight based on the total weight of the tread.

Claim 46 (previously presented): The tread of claim 45, wherein the at least one vulcanization accelerator is selected from accelerators including at least one 2-benzothiazole or sulphenamide group.

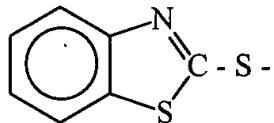
Claim 47 (previously presented): The tread of claim 46, wherein the at least one vulcanization accelerator has a following structural formula:



wherein n is an integer from 1 to 5 and X is H or a group selected from:



wherein R1 and R2 are independently H; an alkyl group; a saturated ring optionally comprising C, S, or O; a cycloalkyl group having 5 or 6 carbon atoms; or a group



Claim 48 (currently amended): The tread of claim 45, wherein a weight ratio between of the amount of extractable residue of the at least one vulcanization accelerator and to the amount of the at least one activator, expressed in terms of zinc oxide equivalents, is not higher less than or equal to 10:1.

Claim 49 (currently amended): The tread of claim 45, wherein a weight ratio between of the amount of combined sulfur and to the amount of extractable residue of the at least one vulcanization accelerator is greater than or equal to 1.2:1 and less than or equal to 2.8:1.

Claim 50 (previously presented): The tread of claim 45, wherein the at least one activator is selected from the group comprising: oxygenated compounds of a metal selected from Zn, Bi, or Pb; salts formed between the metal and a fatty acid, either saturated or unsaturated, having from 8 to 18 carbon atoms; and mixtures thereof.

Claim 51 (previously presented): The tread of claim 45, wherein the at least one reinforcing filler comprises carbon black, silica, or carbon black and silica.

Claim 52 (currently amended): A vulcanizable rubber composition for manufacturing a tread for a vehicle tire[[s]], comprising:

a cross-linkable unsaturated chain polymeric base; and

a vulcanizing system, comprising:

an amount of sulfur from greater than or equal to 0.5 phr and less than or equal to 2 phr;

an amount from greater than or equal to 1.5 phr and less than or equal to 7 phr of at least one vulcanization accelerator containing at least one carbon atom bound to at least two sulfur atoms; and

an amount not higher less than or equal to 2 phr, expressed in terms as equivalents of zinc oxide equivalents, of at least one activator;

wherein, once vulcanized, the rubber composition comprises an amount of extractable residue of the at least one vulcanization accelerator greater than or equal to 0.5% and less than or equal to 1.8% by weight based on a total weight of the rubber composition.

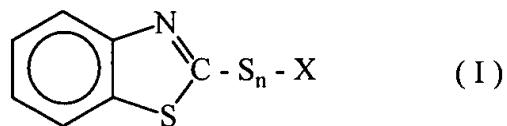
Claim 53 (previously presented): The vulcanizable rubber composition of claim 52, wherein the cross-linkable unsaturated chain polymeric base comprises at least one polymer selected from the group comprising: natural rubber; polybutadiene; polychloroprene; polyisoprene; optionally halogenated isoprene-isobutene copolymers; butadiene-acrylonitrile copolymers; copolymers obtainable by polymerization of at least one conjugated diene with at least one vinyl aromatic hydrocarbon; optionally halogenated isobutylene/p-methyl styrene

copolymers; styrene-butadiene-isoprene terpolymers, obtained either in solution or in emulsion; ethylene-propylene-diene terpolymers; and mixtures thereof.

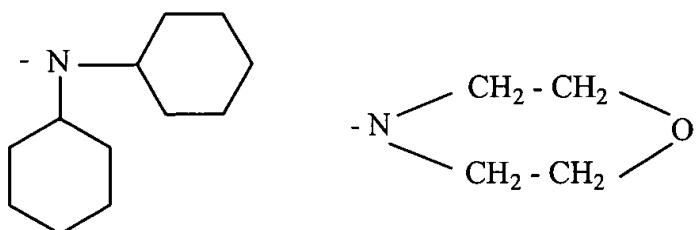
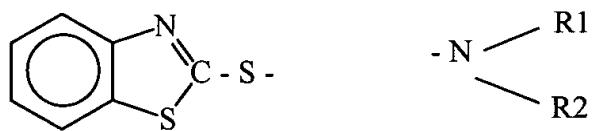
Claim 54 (previously presented): The vulcanizable rubber composition of claim 52, wherein the sulfur of the vulcanizing system is provided by elementary sulfur or by at least one sulfur donor selected from the group comprising: dithiobismorpholine, dithiobiscaprolactame, dipentamethylene thiuram tetrasulphide, dialkyldithiophosphate polysulphide, bis-triethoxysilylpropyl polysulphide, alkylphenoldisulphides, and mixtures thereof.

Claim 55 (previously presented): The vulcanizable rubber composition of claim 52, wherein the at least one vulcanization accelerator is selected from among accelerators including at least one 2-benzothiazole or sulphenamide group.

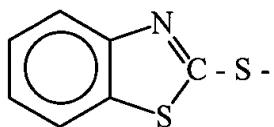
Claim 56 (previously presented): The vulcanizable rubber composition of claim 55, wherein the at least one vulcanization accelerator has a following structural formula:



wherein n is an integer from 1 to 5 and X is H or a group selected from:



wherein R1 and R2 are independently H; an alkyl group; a saturated ring optionally comprising C, S, or O; a cycloalkyl group having 5 or 6 carbon atoms; or a group



Claim 57 (previously presented): The vulcanizable rubber composition of claim 52, wherein the at least one vulcanization accelerator is selected from the group comprising: 2-mercaptobenzothiazole (MBT), dibenzothiazyl disulphide (MBTS), N-cyclohexyl-2-benzothiazyl-sulphenamide (CBS), N-tert.butyl-2-benzothiazyl sulphenamide (TBBS), 2-morpholinthia-2-benzothiazole (MBS), N-dicyclohexyl-2-benzothiazyl sulphenamide (DCBS), benzothiazyl-2-diisopropyl sulphenamide (DIBS), benzothiazyl-2-tert.amyl sulphenamide

(AMZ), morpholine-thiocarbonyl sulphenmorpholine (OTOS), N-tert.butyl-2-benzothiazol sulphenamide (TBSI), and mixtures thereof.

Claim 58 (currently amended): The vulcanizable rubber composition of claim 52, wherein a weight ratio ~~between of~~ the amount of sulfur of the vulcanizing system ~~and to~~ the amount of the at least one vulcanization accelerator is greater than or equal to 0.16:1 ~~and less than or equal~~ to 0.48:1.

Claim 59 (currently amended): The vulcanizable rubber composition of claim 55, wherein a weight ratio ~~between of~~ an amount of 2-benzothiazole groups coming from the at least one vulcanization accelerator ~~and to~~ the amount of the at least one activator, expressed in terms of zinc oxide equivalents, is ~~not higher~~ less than or equal to 10:1.

Claim 60 (previously presented): The vulcanizable rubber composition of claim 52, further comprising at least one secondary vulcanization accelerator selected from diphenylguanidines, dithiocarbamates, thiurams, and mixtures thereof.

Claim 61 (previously presented): The vulcanizable rubber composition of claim 60, wherein the at least one secondary vulcanization accelerator is selected from the group comprising: diphenyl guanidine (DPG), zinc dimethyl dithiocarbamate (ZDMC), zinc diethyl dithiocarbamate (ZDEC), zinc dibutyl dithiocarbamate (ZDBC), zinc ethyl-phenyl dithiocarbamate (ZEPC), zinc dibenzyl dithiocarbamate (ZBEC), tetramethylthiuram disulphide

(TMTD), tetramethylthiuram monosulphide (TMTM), dimethyl diphenyl thiuram disulphide, and mixtures thereof.

Claim 62 (previously presented): The vulcanizable rubber composition of claim 52, wherein the at least one activator is selected from the group comprising: oxygenated compounds of a metal selected from Zn, Bi, or Pb; salts formed between the metal and a fatty acid, either saturated or unsaturated, having from 8 to 18 carbon atoms; and mixtures thereof.

Claim 63 (previously presented): The vulcanizable rubber composition of claim 52, further comprising at least one reinforcing filler comprising carbon black, silica, or carbon black and silica.

Claim 64 (currently amended): The vulcanizable rubber composition of claim 63, wherein the at least one reinforcing filler comprises from 0 phr to 100 phr of carbon black and from greater than or equal to 0 phr and less than or equal to 100 phr of silica.

Claim 65 (currently amended): A vulcanizing system for a vehicle tire[[s]], including: an amount of sulfur from greater than or equal to 0.5 phr and less than or equal to 2 phr; an amount from greater than or equal to 1.5 phr and less than or equal to 7 phr of at least one vulcanization accelerator containing at least one carbon atom bound to at least two sulfur atoms; and

an amount ~~not higher less than or equal to~~ 2 phr, expressed ~~in terms as equivalents of zinc oxide equivalents~~, of at least one activator;

wherein a rubber composition comprising the vulcanization system, once vulcanized, comprises an amount of extractable residue of the at least one vulcanization accelerator greater than or equal to 0.5% and less than or equal to 1.8% by weight based on a total weight of the rubber composition.

Claim 66 (previously presented): A process for manufacturing a tire for vehicle wheels, comprising the steps of preparing, around a circumference of a belt structure, a tread of claim 45, and linking, by vulcanization, the tread to the belt structure.

Claim 67 (previously presented): A process for covering a worn tire for vehicle wheels, comprising the steps of preparing, around a circumference of a belt structure, a tread of claim 45, and irreversibly linking the tread to the belt structure.

Claim 68 (previously presented): A method for increasing wear resistance of a tire, the tire being provided with at least one carcass ply on which a belt structure is circumferentially applied, and with a tread circumferentially applied around the belt structure and externally provided with a rolling surface suitable to get in touch with the ground, wherein the tire is provided with a tread of claim 45.